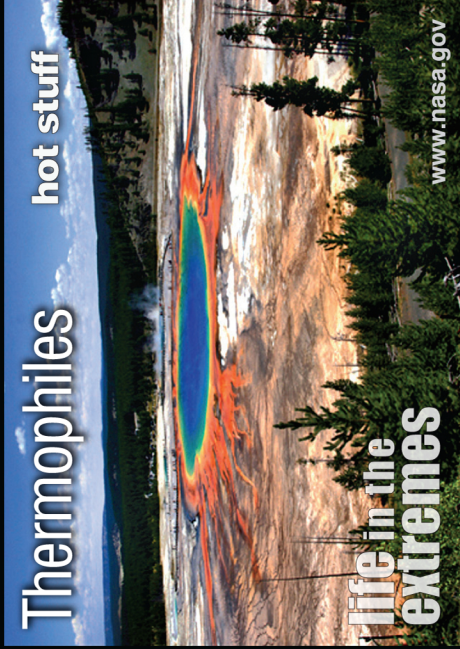


Thermophiles

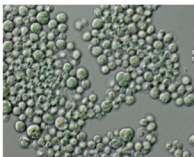
hot stuff

Life in the extremes

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Cyanidium, a type of algae, loves the hot springs at Yellowstone National Park. This thermophile can make the pools it lives in green.

EXTREME ABILITY These microbes have developed special proteins that allow them to tolerate a broad range of temperatures—some even require temperatures around 140 °F to exist at all.

EXTREME ENVIRONMENTS Thermophiles can be found all over the world in places like hot springs, crater lakes, peat bogs, and superheated hydrothermal vents on the sea floor.

EXTREME EXAMPLES *Thermus aquaticus*, a bacterium found in a Yellowstone hot spring, produces an enzyme that allows for quick DNA replication. Scientists call it *Taq* Polymerase, and its use has revolutionized biotechnology all over the world.

Photo Credit: Grand Prismatic Spring at Yellowstone National Park - Mila Zinkova (front); *Cyanidium* - David Patterson and micro*scope (back). For more information visit <http://astrobiology.nasa.gov/>